

# Capabilities

## forestconcepts

### Precision Feedstocks®

Reactor-Ready biomass feedstocks for research, pilot, and commercial-scale



Reliable, high-yielding performance of bio-products, biochemicals, and biofuels facilities depends upon consistent supply of uniform feedstocks. Forest Concepts has more than 15 years of experience co-optimizing feedstocks with client processes to maximize yield and profit.

In partnership with US Department of Energy, a new method for low-energy comminution (milling) of biomass was developed. The resulting rotary-shear technology (aka Crumbler® technology) enables milling of high moisture biomass to final small uniform particles without drying for biochemical conversion or before drying when dry feedstocks are needed.

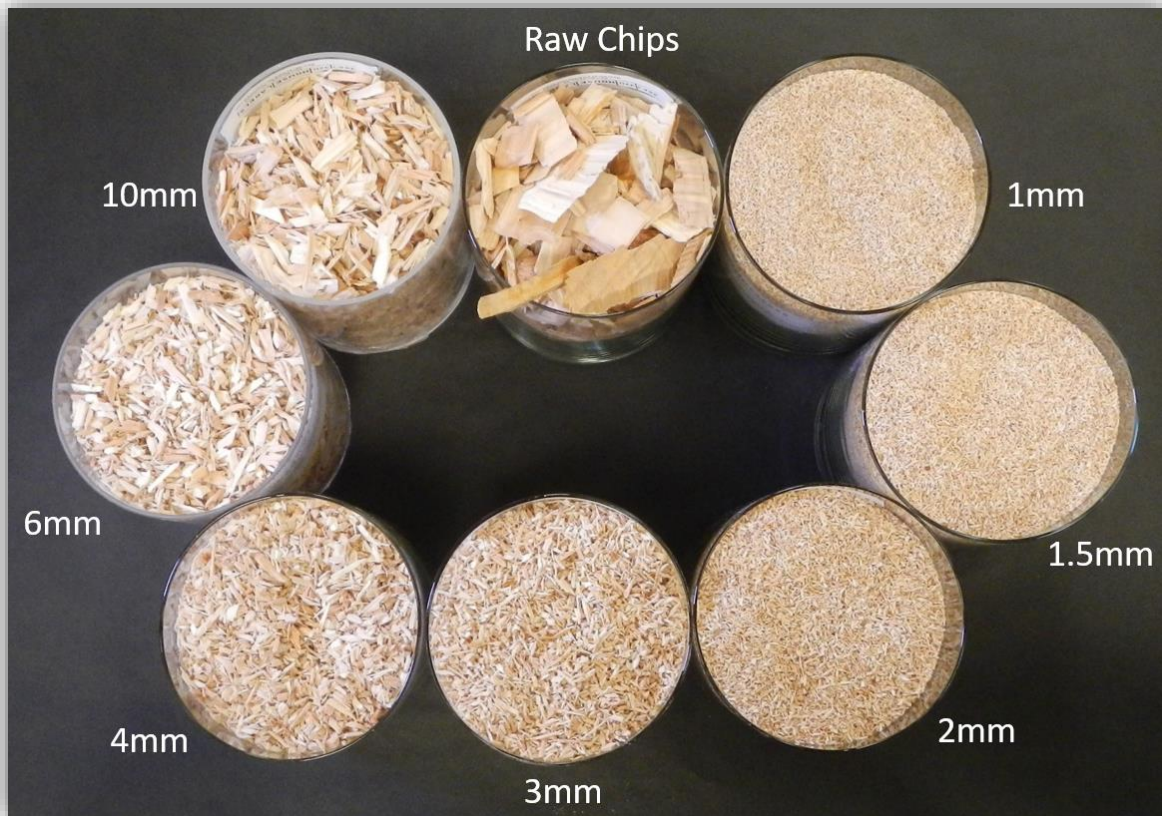
Precision feedstocks are optimized for particle cross-section, length/aspect ratio, moisture content, flowability, and other important characteristics. Forest Concepts delivers on-spec feedstocks through careful milling, screening, and drying.

An axiom of the bioeconomy is that “all feedstocks are local;” and an axiom of process engineering is that “every process configuration has a sweet spot.” Engineers and scientists at Forest Concepts work with customers and project teams every day to quantify the interaction of biomass feedstock properties with conversion process parameters in search of the low-cost sweet spot.

Forest Concepts’ has the capability to mill with a hammermill or Crumbler® equipment across the size range of 1.5mm to more than 20mm. The equipment is instrumented to document power consumption.

Screening specifications are developed using orbital tapping lab screens and verified with our own orbital two-deck screen that has more than 30 sieve options.

Test runs range from a few kilograms to truckloads.



Some of the materials we have experience with include:

#### **Soft Wood**

Western Juniper  
 Eastern Redcedar  
 Redwood  
 Black Pine  
 Lodgepole Pine  
 Loblolly Pine  
 Ponderosa Pine  
 Douglas fir  
 Spruce

#### **Hard Wood**

Alder  
 Poplar  
 Cottonwood  
 Willow  
 Tanoak  
 Eucalyptus  
 Maple

#### **Herbaceous Species**

Corn stover from bales  
 Corn cobs  
 Silage Corn – field chopped  
 Sorghum – baled  
 Sorghum – field chopped  
 Switchgrass from bales  
 Miscanthus – field chopped  
 Miscanthus from bales  
 Bamboo  
 Wheat straw  
 Barley straw  
 Rice straw  
 Arundo Donax  
 Industrial hemp stalks

#### **Other Materials**

Bagasse  
 Agave fiber  
 Hemp fiber  
 Almond hulls  
 Almond shells  
 Walnut shells  
 Vineyard prunings  
 Orchard prunings  
 Ground forest residuals  
 Ground land clearing debris  
 C&D debris  
 Recycled plastic bottles  
 Recycled circuit boards

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